

REMARKS

In the present Application, claims 1-33 were pending in the IPER. By this Amendment, no claims have been amended, claims 1-21 have been canceled, and claims 34-53 have been added. Accordingly, claims 22-53 are presented and at issue. By this Amendment, claims 22-53 are believed to be in condition for allowance.

All claims 1-33 were found to have industrial applicability. Claims 1-13, 15-29, 32, and 33 were found to have novelty. Claims 15, 16, 18, and 19 were found to have inventive step.

New claims 34, 35, 37, and 38 represent former claims 15, 16, 18, and 19, with the first three thereof being in independent form. New claim 36 represents former claim 17 made dependent on new claim 35.

Claims 14, 30, and 31 based upon Johnsen

Claims 14, 30, and 31 were cited as lacking novelty under PCT Article 33(2) as being anticipated by U.S. Patent No. 3,621,781 of Johnsen. Applicant respectfully traverses the citation.

The examiner asserted that "Fig. 12 discloses a cartridge comprising a metal casing 126 and a cover 124."

Johnsen "relates to cartridges for guns composed of a steel cartridge sleeve having a Teflon or nylon, etc. jacket therearound to prevent excessive friction." Col. 1, lines 11-13.

Johnsen fails to show the method as applied to an industrial ballistic tool as in claims 30 and 31.

Claims 1, 2, 8, 11, 17, and 21-29 based upon Johnsen and Guignet

Claims 1, 2, 8, 11, 17, and 21-29 were cited as lacking an inventive step under PCT Article 33(3) as being obvious over Johnsen in view of Guignet. Applicant respectfully traverses the citation.

The examiner asserted that "Guignet teaches that it is old and well-known in the art to form a case for an ammunition of a zinc-based alloy." The examiner further asserted that the substitution "as taught by Guignet as being an art recognized equivalent material for forming a cartridge case, would have been obvious to one having ordinary skill ..."

Added independent claim 39 references a case formed of a cast zinc or a cast zinc-based alloy.

Guignet discloses drawn metal cartridge shells and identifies that a zinc-copper alloy may be used as “[c]ommercial brass is relatively expensive and cannot readily be drawn into my preferred form.” Page 1, lines 94-96. Guignet does not identify how the drawn component would be converted into a case.

Guignet can hardly be properly asserted as teaching that a zinc alloy is the equivalent of any other alloy. Rather, Guignet teaches that zinc alloy is not the equivalent of brass for a highly particularized application. This can hardly be regarded as teaching that such zinc alloy is the equivalent of the steel of Johnsen which is another highly different particularized application. Furthermore, there is no suggestion why one of ordinary skill in the art would apply the teaching of Guignet, which is directed to a particular drawn case “for sporting cartridges” (page 1, lines 5-6) to the unique, different, and very particular ammunition of Johnsen. Thus there is no suggestion for one to attempt to replace the steel sleeve of Johnsen with the drawn material of Guignet, let alone any indication of how this would be accomplished.

Guignet teaches a particular zinc alloy as being uniquely suited for a drawn case. Thus, if anything, it teaches away from casting as specified in claim 39.

Claims 3-6 based upon Johnsen, Guignet, and British Patent No. 3,891

Claims 3-6 were cited as lacking an inventive step under PCT Article 33(3) as being obvious over Johnsen in view of Guignet and British Patent No. 3,891. Applicant respectfully traverses the citation.

Added claim 43 identifies the zinc material and interspersed grooves and ribs.

The inapplicability of Johnsen and its combination with Guignet are identified above.

The British patent was cited as teaching use of a plurality of grooves “to reduce heat transfer.” It was further asserted that it would have been obvious “to vary the number and size of the grooves to achieve a desired result.”

The British patent, however, is directed to solving barrel heating “[w]hen a rifle is fired a number of times in rapid succession...” Page 1, line 5. The British patent describes a “service rifle” cartridge. Page 1, line 19.

There is no suggestion for one of ordinary skill in art to attempt to apply the teachings of the British patent to Johnsen or a modification thereof. The British patent is directed to a service rifle cartridge, which, in a conventional manner, is chambered, fired, and extracted. As noted above, Johnsen discloses a very particular cartridge including a nylon sleeve. As nylon is

relatively insulating, there is no indication why the Johnsen projectile would require the British modification.

Claim 43 identifies that the ribs have a diameter effective to engage rifling of the barrel. This is not suggested by the British patent which only teaches ribs engaging the chamber. Furthermore, this would be inconsistent with the nylon layer of Johnsen.

Furthermore, no “desired result” is identified by the examiner to be achieved by the claimed dimensions of the dependent claims.

Claim 20 based upon Johnsen and British Patent No. 3,891

Claim 20 was cited as lacking an inventive step under PCT Article 33(3) as being obvious over Johnsen in view of British Patent No. 3,891. Applicant respectfully traverses the citation.

The inapplicability of Johnsen and its combination with the British patent are addressed above.

Claims 32 and 33 based upon Johnsen and Dippold et al.

Claims 32 and 33 were cited as lacking an inventive step under PCT Article 33(3) as being obvious over Johnsen in view of U.S. Patent No. 5,824,944 of Dippold et al. Applicant respectfully traverses the citation.

Dippold was cited as teaching “that it is old and well-known in the art to fire a projectile to remove clinkers from a kiln or remove a plug from a furnace.” To employ the Johnsen device to remove clinkers ... as taught by Dippold et al. would have been obvious...” There has been no citation of a motivation for this proposed combination.

Claims 1, 2, 8 and 9 based upon Clas and Guignet

Claims 1, 2, 8 and 9 were cited as lacking an inventive step under PCT Article 33(3) as being obvious over U.S. Patent No. 3,230,884 of Clas in view of U.S. Patent No. 1,974,270 of Guignet. Applicant respectfully traverses the citation.

New independent claim 39 contains elements similar to claim 8.

Clas was asserted as disclosing “the ammunition substantially as claimed” and Guignet was cited as teaching that a zinc-based alloy was “an art recognized equivalent material for forming a cartridge case...”

Clas, however, discloses “blank shells for artillery.” Identified gun calibers are 9 cm and 10.5 cm. Col. 3, lines 3 and 31. The shells are identified as including “a shell case, powder

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charge and tamping means...” Col. 1, line 36. Furthermore, there is no suggestion why one of ordinary skill in the art would apply the teaching of Guignet, which is directed to a particular drawn case “for sporting cartridges” (page 1, lines 5-6) to another very particular and utterly different artillery shell.

Claim 39 identifies casting. Although, as noted above, there is no suggestion for the proposed combination, the proposed combination also fails to disclose casting.

Claims 3-6 based upon Clas, Guignet, and British Patent No. 3,891

Claims 3-6 were cited as lacking an inventive step under PCT Article 33(3) as being obvious over Clas in view of Guignet and British Patent No. 3,891. Applicant respectfully traverses the citation.

New independent claim 43 incorporates certain elements of former claim 3. The claim also references elements for which the examiner has previously cited Johnsen.

The impropriety of the basic combination of Clas and Guignet is identified above.

Also, as noted above, the British patent describes a “service rifle” cartridge used when a rifle is fired in rapid succession. There is no suggestion why one of ordinary skill in the art would attempt to apply the teaching of a reference regarding rapid fire rifles to artillery blanks or further modify the combination in view of Johnsen.

There is no suggestion why one of ordinary skill in the art would, furthermore, adopt the claimed dimensions of the dependent claims with such an artillery shell. Claim 47 identifies an industrial ballistic tool barrel having particular diameters. There is no suggestion for one of ordinary skill in the art to attempt to insert a 9+ cm artillery blank into such an industrial ballistic tool.

Claims 1, 2, and 8-13, based upon Ballreich et al. and Guignet

Claims 1, 2, and 8-13 were cited as lacking an inventive step under PCT Article 33(3) as being obvious over Ballreich et al. in view of Guignet. Applicant respectfully traverses the citation.

Ballreich et al. was asserted as disclosing “the invention substantially as claimed”. Ballreich et al. discloses the use of radiation-crosslinked polyethylene to form training cartridges (e.g., 7.62 mm NATO cartridges). The cartridge profile duplicates the service round profile and, in an embodiment of FIG. 1, the polyethylene component occupies a portion of the cartridge corresponding to the majority of the body of the service round and the projectile of the service

round. Guignet was discussed above. There is no suggestion to apply the particular zinc alloy taught by Guignet as useful in drawn cases to the relatively stubby “metallic bottom piece” of Ballreich et al.

Additionally, as noted above, Guignet’s teaching of a particular zinc alloy as uniquely useful in drawn cartridges does not suggest its use in the cast base pieces of claims 39 and 43.

Furthermore, there is no suggestion for the use of a #209 primer or the case mass and diameter of the dependent claims. No “desired result” has been identified which would lead one of ordinary skill in the art to choose these elements.

Similarly, Ballreich et al. teaches the minimization of the size of the metallic piece. Accordingly, there is no suggestion that a cap length be between 100% and 300% of a case length, as identified in claim 50.

Ballreich et al. furthermore fails to disclose the identified first radial clearance of claim 51.

Claims 3-7 based upon Ballreich et al., Guignet, and British Patent No. 3,891

Claims 3-7 were cited as lacking an inventive step under PCT Article 33(3) as being obvious over Ballreich et al. in view of Guignet and British Patent No. 3,891. Applicant respectfully traverses the citation. Added claim 43 incorporates certain elements of former claim 3 as noted above.

The examiner asserted that it would have been obvious “[t]o employ a plurality of grooves on the exterior surface of the ammunition case formed by the combination of Ballreich et al. and Guignet to reduce heat transfer, as taught by the British patent...” and “to vary the number and size of the grooves to achieve a desired result.”

The impropriety of the combination of Ballreich et al. and Guignet is addressed above.

Additionally, the British patent shows grooving of the portion of the cartridge which, in Ballreich et al., is formed of polyethylene not the portion formed of metal. Accordingly, there is no suggestion for the grooving of the metallic case as identified in claims 43-48 nor is there any suggestion for the dimensions.

Additionally, as noted above, there is no suggestion for combining the asserted combination with the specified industrial ballistic tool barrel of claim 47.

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Date: 3/15/02
Wiggin & Dana
One Century Tower
P.O. Box 1832
New Haven, CT 06508-1832
(203) 498-4373
(203) 782-2889 Fax

6%BD01! .DOC\12868\13\319225.01

Respectfully submitted,
Douglas D. Olson, et al.

William B. Slate
William B. Slate
Reg. No. 37,238

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This is the U.S. National Stage of PCT/US00/25866, entitled "INDUSTRIAL AMMUNITION" filed September 21, 2000 and published in English on March 29, 2001 as WO 01/22026 and claims priority to [Priority is claimed of] U.S. Provisional Patent Application 60/155,052, entitled "INDUSTRIAL AMMUNITION AND METHOD AND APPARATUS FOR USE THEREOF" filed September 21, 1999.

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